

EVIDENTIARY HEARING  
BEFORE THE  
CALIFORNIA ENERGY RESOURCES CONSERVATION  
AND DEVELOPMENT COMMISSION

In the Matter of: )  
 )  
Application for Certification ) Docket No.  
for the Elk Hills Power ) 99-AFC-1  
Project )

HEARING ROOM A  
1516 NINTH STREET  
SACRAMENTO, CALIFORNIA

THURSDAY, OCTOBER 26, 2000  
9:00 a.m.

Reported By:  
Debi Baker  
Contract No. 170-99-001  
COMMITTEE MEMBERS PRESENT

PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345

Michal Moore, Commissioner, Presiding Member

Ellen Townsend-Smith, Commissioner Advisor

Major Williams, Jr., Hearing Officer

STAFF PRESENT

Kerry Lewis, Staff Counsel

Marc Pryor

APPLICANT

Taylor O. Miller

Jane Luckhardt

Downey, Brand, Seymour & Rohwer

Dennis Champion, Sempra Energy

INTERVENOR

Katherine S. Poole, CURE

Adams, Broadwell, Joseph & Cardozo

ALSO PRESENT

Gary Darnsteadt

Chevron U.S.A

PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345

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PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345

1 P R O C E E D I N G S

2 PRESIDING MEMBER MOORE: I'm Michal  
3 Moore, and I'm the Presiding Member on the Elk  
4 Hills hearing, Case Docket Number 99-AFC-1. And  
5 today we will begin our evidentiary hearings, and  
6 we have several items to go over.

7 I don't really have any introductory  
8 remarks. I don't expect to be joined by my  
9 colleague, Robert Pernell, so the members on the  
10 dais are as we -- as you see them. Myself, Major  
11 Williams, our Hearing Officer, and Ellen Townsend-  
12 Smith, who is the Advisor for Commissioner  
13 Pernell.

14 And with that, I'm going to turn to my  
15 Hearing Officer, who does have some introductory  
16 remarks, and we'll begin the hearing.

17 HEARING OFFICER WILLIAMS: Good morning.  
18 We are here this morning to conduct business on  
19 several matters. The first order of business is  
20 to take comments on the Presiding Member's  
21 Proposed Decision. After we take comments on the  
22 Presiding Member's Proposed Decision, we will  
23 conduct an evidentiary hearing on the matters set  
24 forth in the notice of availability. There, the  
25 parties were ordered to file witness lists,

1 testimony, and to brief certain issues related to  
2 water use by the proposed Elk Hills Power Project.

3 Testimonial materials were timely filed  
4 by both Applicant and Staff. CURE elected not to  
5 file testimony, but did file a written brief.  
6 Applicant and CURE did elect to file, also, a  
7 joint statement which represents their agreement  
8 for modification of the PMPD, on issues relating  
9 to Hazardous Material Management, Water Resources,  
10 and Worker Safety.

11 The joint statement also includes  
12 Applicant and CURE's bilateral agreement on Air  
13 Quality issues. The bilateral agreement does not  
14 affect any modification to the PMPD.

15 Commissioner Moore has already  
16 introduced the Committee. I would introduce the  
17 parties. Of course, I'm the Hearing Officer,  
18 Major Williams, Junior. The Applicant is  
19 represented by Taylor O. Miller and Jane E.  
20 Luckhardt. Joseph Rowley, Director of Project  
21 Development is present, and Mr. Dennis Champion is  
22 present, who's the Project Manager for the  
23 Applicant.

24 For Staff, Ms. Kerry Lewis, Staff  
25 Counsel, is present, and Marc S. Pryor, who's the

1 Project Manager, is present, as are several  
2 witnesses from the Staff who will introduce  
3 themselves during their -- during their testimony.

4 CURE is present, and Ms. Kate Poole is  
5 counsel, and she is present. The Public Adviser's  
6 Office was here earlier, but they left.

7 I would at this time ask any -- I do see  
8 some interested individuals who are attending this  
9 hearing, and I would like for them at this time to  
10 stand and identify themselves by name and any  
11 affiliation.

12 Now's the time.

13 MR. DARNSTEADT: Gary Darnsteadt, I'm  
14 with Chevron U.S.A.

15 PRESIDING MEMBER MOORE: You probably  
16 want to give our scribe your card so that she can  
17 have that. And when -- when you have something  
18 that you want to add, we're going to need you to  
19 come up to the microphone. But for right now I  
20 think it'll make it easier on Debi if -- if you  
21 give her your card.

22 Anyone else? The gentleman there --  
23 sir, could you --

24 MR. MacLAGGAN: Peter MacLaggan, I'm an  
25 expert witness in the proceedings for today.

1 HEARING OFFICER WILLIAMS: And, sir, do  
2 you have a business card also that you could give  
3 to the --

4 MR. MacLAGGAN: I've left it with the --

5 HEARING OFFICER WILLIAMS: Thank you  
6 very much.

7 On August 25th, 2000, the Committee  
8 issued the Presiding Member's Proposed Decision in  
9 this proceeding. As I indicated earlier, during  
10 the course of today's hearing the Committee will  
11 first take comments on the Presiding Member's  
12 Proposed Decision. Thereafter we will move into  
13 evidentiary hearings on the issues presented in  
14 the notice, and upon which the parties have  
15 submitted briefs.

16 At this time the Committee will take  
17 comments on the PMPD. The Committee has received  
18 and reviewed the written comments filed by the  
19 parties. The Committee's expectation is that the  
20 parties, if they care to, will summarize their  
21 written comments to the Committee. Members of the  
22 public, if -- if there are any, may summarize  
23 their comments after the parties have completed  
24 their statements.

25 We will begin with the Applicant,



1 followed by Staff, and finally CURE.

2 As to the evidentiary hearing,  
3 Applicant's proposal in their joint statement is  
4 to use aqueous ammonia instead of anhydrous  
5 ammonia. The Committee will first hear from the  
6 Applicant, then from Staff, and finally CURE.  
7 After hearing testimony on the ammonia issue, the  
8 Committee will move on to the issue of Water  
9 Supply.

10 As a procedural matter, Applicant has  
11 suggested that CURE, as the complaining party,  
12 would have the burden of showing that recycled  
13 water is available to the project. Although we  
14 agree with this approach, Applicant and CURE have  
15 reached a joint statement that we shall mark as  
16 Joint Exhibit 1.

17 (Thereupon Joint Exhibit Number 1  
18 was marked for identification.)

19 HEARING OFFICER WILLIAMS: The joint  
20 statement reflects an agreement by CURE and  
21 Applicant on Water Supply issues, so it appears  
22 that CURE no longer is prepared to meet that  
23 burden.

24 If that is the case, the Committee  
25 believes it must rely solely on the materials

1       timely presented by the parties in order to  
2       ascertain a proper interpretation of the issues  
3       upon which the Committee requested augmentation.

4               Prior to convening today, the Committee  
5       circulated a revised witness list that includes  
6       Joint Exhibit 1. If the parties have any  
7       housekeeping issues, including any updates or  
8       changes to the witness list, I would like to  
9       receive those at this time.

10              MR. MILLER: Are you speaking of the  
11       exhibit lists?

12              HEARING OFFICER WILLIAMS: Yes.

13              MS. LUCKHARDT: We have no changes or  
14       modifications to the exhibit lists.

15              HEARING OFFICER WILLIAMS: Staff.

16              MS. LEWIS: Staff does not, either. No  
17       changes.

18              HEARING OFFICER WILLIAMS: Thank you.

19              Are there any other housekeeping matters  
20       that the parties would like to take up before we  
21       get into --

22              MS. LUCKHARDT: I think on the subject  
23       of testimony on ammonia, Rick Tyler has kindly  
24       offered to present testimony on aqueous ammonia.  
25       We were not aware that you wanted additional

1 testimony from us, so --

2 HEARING OFFICER WILLIAMS: No. There  
3 was no expectation on the Committee's part that  
4 you would be presenting additional testimony.

5 MS. LUCKHARDT: Great.

6 HEARING OFFICER WILLIAMS: Evidentiary  
7 hearings are formal in nature, similar to court  
8 proceedings. The purpose of the hearing is to  
9 receive evidence, including testimony, and to  
10 establish the factual record necessary to reach a  
11 decision in this case. The Applicant has the  
12 burden of presenting sufficient substantial  
13 evidence to support the findings and conclusions  
14 required for certification of the proposed  
15 facility. Therefore, we will proceed with  
16 augmentation of the record with presentations,  
17 first by Applicant, and then by Staff.

18 Ms. Poole, would I be correct in stating  
19 that CURE has nothing further to provide in the  
20 way of augmenting the record, other than Joint  
21 Exhibit 1?

22 MS. POOLE: Are you talking about  
23 comments on the PMPD, or additional testimony?

24 HEARING OFFICER WILLIAMS: Additional  
25 testimony.

1 MS. POOLE: That's correct.

2 HEARING OFFICER WILLIAMS: Thank you.

3 Witnesses will testify under oath or  
4 affirmation. During the hearings the party  
5 sponsoring a witness shall establish the witness'  
6 qualification and ask the witness to summarize the  
7 prepared testimony. Relevant exhibits should be  
8 offered into evidence at that time.

9 At the conclusion of the witness' direct  
10 testimony, the Committee will provide other  
11 parties an opportunity for cross examination,  
12 followed by redirect and recross examination, as  
13 appropriate. Multiple witnesses may testify as a  
14 panel. The Committee may also question the  
15 witnesses.

16 Upon conclusion of presentations by  
17 Applicant and Staff, we'll invite members of the  
18 public to offer unsworn public comment. Public  
19 comment is not testimony, but may be used to  
20 explain evidence in -- in the record.

21 Are there any questions at this time?

22 Okay. We'll move right into the comment  
23 portion. Applicant, you may proceed.

24 MS. LUCKHARDT: Okay. What I've handed  
25 out to everyone today, and what will be filed

1       today is a three-page document entitled Additional  
2       Modification to Conditions of Certification to  
3       Implement Settlement Agreement. And after we  
4       filed our comments on the PMPD and the Settlement  
5       Agreement, we spoke with the other parties and  
6       found some additional areas that we could clean up  
7       in the document to completely implement the  
8       Settlement Agreement within the Presiding Member's  
9       Proposed Decision. So you have that in front of  
10      you today.

11               It is our understanding, and I'm sure  
12      the other parties will let us know, that -- that  
13      these additional comments are acceptable to them.

14               In light of those changes that we have  
15      made to the project, I would just like to go over  
16      a couple of things between the comments that we  
17      made, Applicant filed on the PMPD, and the  
18      comments that Staff filed, where there are now  
19      some inconsistencies.

20               Staff requested in their comments on  
21      page 3, at the top, they refer to pages 48 through  
22      63, where they request that you replace the  
23      conditions in the Presiding Member's Proposed  
24      Decision with the conditions contained in the FSA.  
25      And that is acceptable to us, and would therefore

1       remove our comment on page 2 of Applicant's  
2       comments, labeled pages 53 through 67. But we  
3       would request that you make one of those two  
4       changes. Either is fine with us. We're willing  
5       to go with Staff's FSA comments, as they have  
6       requested.

7                You will also find in our -- in the  
8       three-page document that we handed out this  
9       morning, that we have a new HAZ-6, which is a  
10      brand-new condition. And there is also a revised  
11      Soil and Water 4 and 5, and a revised TRANS-9.

12               And so that means that our original  
13      TRANS-9 that we presented in our comments can be  
14      ignored at this point. The more current one is  
15      the three-page document you have in front of you.

16               In regards to Staff's comments --

17               PRESIDING MEMBER MOORE: Could I -- can  
18      I just ask you a question on that?

19               MS. LUCKHARDT: Sure.

20               PRESIDING MEMBER MOORE: Did you just  
21      say HAZ-9?

22               MS. LUCKHARDT: No, TRANS, T-r-a-n-s.  
23      It's the third page of the handout from today.

24               PRESIDING MEMBER MOORE: All right.

25               MS. LUCKHARDT: There's a new TRANS-9.

1 And in our pre-filed comments on the PMPD, we had  
2 a -- a new TRANS-9, as well.

3 PRESIDING MEMBER MOORE: I'm sorry, I  
4 just didn't hear you, and I was --

5 MS. LUCKHARDT: That's fine.

6 PRESIDING MEMBER MOORE: -- thinking I  
7 wasn't tracking --

8 MS. LUCKHARDT: I'm attempting to  
9 clarify, not --

10 PRESIDING MEMBER MOORE: -- whatever it  
11 was. I understand.

12 MS. LUCKHARDT: -- not make it worse.

13 PRESIDING MEMBER MOORE: No, it was my  
14 ears. It wasn't your fault.

15 MS. LUCKHARDT: No problem.

16 Let's see. On Staff's comments, page 4,  
17 under Air Quality. We would prefer that the  
18 Committee stay with their original finding,  
19 instead of the revised finding requested by Staff,  
20 or suggested by Staff on Finding Number 9.

21 On page 5, on Safety 1, since we have  
22 added the REA Class 2 classification, we believe  
23 we responded to Staff's request on Safety 1. And  
24 also, directly above that, Staff has comments on  
25 the old HAZ-5 that we believe has been revised

1 with the change to aqueous ammonia.

2 Only two other points. At the very end  
3 of Staff's comments, pages 13 and 14, their  
4 comments on the original TRANS, T-r-a-n-s, TRANS-9  
5 and 10. Since we have changed to aqueous we  
6 understand from Staff that these comments are no  
7 longer necessary.

8 And that's all we've got.

9 HEARING OFFICER WILLIAMS: Counsel, I  
10 think I would like to mark the Additional  
11 Modifications to Conditions as perhaps a Joint  
12 Exhibit. Is there --

13 MS. LUCKHARDT: Sure, however you would  
14 like to do it is fine.

15 HEARING OFFICER WILLIAMS: Good. Okay,  
16 so we'll mark this as Joint 2.

17 (Thereupon Joint Exhibit Number 2 was  
18 marked for identification.)

19 HEARING OFFICER WILLIAMS: Does that  
20 conclude your presentation?

21 MS. LUCKHARDT: That concludes it. Yes,  
22 it does.

23 HEARING OFFICER WILLIAMS: Staff.

24 MS. LEWIS: Thank you.

25 Other than the comments that we have in



1 writing, and I think Ms. Luckhardt clarified some  
2 of the areas that have changed because of this new  
3 Exhibit 2, we don't have any further comments,  
4 other than what's been written in -- in our PMPD  
5 comments, unless the Committee has some questions  
6 for us.

7 HEARING OFFICER WILLIAMS: Does that  
8 conclude your presentation?

9 MS. LEWIS: Yes.

10 HEARING OFFICER WILLIAMS: CURE.

11 MS. POOLE: I would simply add that the  
12 Joint Statement is essentially our comments on the  
13 PMPD. And we're very pleased that the Applicant  
14 has agreed to make these changes, and we hope the  
15 Committee will consider incorporating the changes  
16 that we've recommended be taken as part of the  
17 licensing conditions.

18 HEARING OFFICER WILLIAMS: Thank you.

19 I don't believe there any members of the  
20 public here, so I think at this point we should  
21 move directly into the evidentiary hearing  
22 portion. And I think that we, in the interest of  
23 efficiency, will have Mr. Tyler make his comments  
24 regarding aqueous ammonia at this time.

25 PRESIDING MEMBER MOORE: Is it -- by the

1 way, just for housekeeping, is there anyone else  
2 here who's on a time deadline, who has to be  
3 somewhere else, that we need to be conscious of  
4 making a -- making them fit into the schedule?

5 Okay. So nobody's got a time constraint  
6 that we need to be aware of. Okay. Mr. Tyler.

7 MR. TYLER: Hello. I am dealing with  
8 the issues regarding the change from anhydrous  
9 ammonia to aqueous ammonia. I reviewed the  
10 changes, or the comments, and --

11 HEARING OFFICER WILLIAMS: Mr. Tyler,  
12 before you begin, I know you were previously  
13 sworn, but let's go ahead and re-swear the  
14 witness.

15 (Thereupon Rick Tyler was, by the  
16 reporter, sworn to tell the truth,  
17 the whole truth, and nothing but  
18 the truth.)

19 HEARING OFFICER WILLIAMS: Thank you.

20 TESTIMONY OF

21 RICK TYLER

22 called as a witness herein, having been first duly  
23 sworn, was examined and testified as follows:

24 MR. TYLER: Again, in looking at the  
25 changes that are proposed in the agreement between

1 CURE and the Applicant, I reviewed the proposed  
2 changes to the PMPD, the comments that we made  
3 there which basically reflect a change to storage  
4 of aqueous ammonia as opposed to anhydrous  
5 ammonia, and the additional changes in -- in your  
6 -- that you just identified as Joint Exhibit 2.

7 The primary difference between anhydrous  
8 ammonia and aqueous ammonia is that anhydrous  
9 ammonia, if accidentally released, poses a  
10 potential for much larger downwind concentrations,  
11 and a much larger area of potential impact. The  
12 use of aqueous ammonia, because the rate of  
13 introduction of material is driven by evaporation  
14 from the pool surface, poses much less risk  
15 downwind.

16 With the proposed mitigations that we  
17 have before us in HAZ-5, HAZ-6, and TRANS-9, I  
18 believe that the potential for downwind  
19 concentrations of any significance are virtually  
20 precluded or would be restricted to the -- to the  
21 project site as a result of aqueous ammonia.

22 So this is a -- a major risk reduction,  
23 in terms of the Staff found that, originally, that  
24 anhydrous was acceptable based on the low  
25 probability of an accidental release. The change

1 to aqueous virtually precludes the probability of  
2 offsite impacts. So that's an improvement.

3 TRANS-9 incorporates a requirement to  
4 use a MC 307 transport vehicle, which is a --  
5 basically a high integrity type vehicle, DOT  
6 certified vehicle, made of heavy gage stainless  
7 steel that has protections against rear end  
8 collisions, and so on. So this -- this vehicle is  
9 designed to provide a high level of integrity and  
10 transport of the ammonia from the supplier to the  
11 facility. So we believe that this is a major  
12 improvement, as well, and that overall this --  
13 this is a completely acceptable practice.

14 HEARING OFFICER WILLIAMS: Does that  
15 conclude your --

16 MR. TYLER: Yes, it does.

17 HEARING OFFICER WILLIAMS: -- testimony.  
18 Is there any cross examination?

19 MS. LUCKHARDT: No questions.

20 MS. LEWIS: No questions.

21 HEARING OFFICER WILLIAMS: Okay. Then I  
22 think you're excused --

23 MR. TYLER: Thank you.

24 HEARING OFFICER WILLIAMS: -- Mr. Tyler.  
25 Thank you.

1                   Okay. We will now turn back to  
2           Applicant for its presentation on the Water Supply  
3           issue.

4                   MR. MILLER: Good morning. We have two  
5           witnesses to present in response to the  
6           Committee's evidentiary hearing order. Mr. Joe  
7           Rowley, and Mr. Peter MacLaggan.

8                   Is this mic not quite --

9                   PRESIDING MEMBER MOORE: Your -- Taylor,  
10          your voice is pretty soft, so you need to --

11                  MR. MILLER: You know, I -- I really get  
12          personal with this mic.

13                  PRESIDING MEMBER MOORE: -- and we've  
14          been having a lot of trouble with these  
15          microphones. So you almost literally need to get  
16          right up next to it.

17                  MR. MILLER: I'll start again.

18                  We have two witnesses to present this  
19          morning concerning the evidentiary hearing order  
20          relating to the applicability of Water Code  
21          Sections 13550 and following. Mr. Joe Rowley,  
22          Project Manager, who has appeared before, and Mr.  
23          Peter MacLaggan. We'll introduce Mr. MacLaggan to  
24          you as -- to give you his background.

25                  We did submit a brief along with the

1       other parties in response to the -- to the order,  
2       as well. I will just briefly state that in --  
3       our conclusions to the questions, but Mr. Rowley  
4       and Mr. MacLaggan will get into more detail.

5               Our conclusion, to begin with, regarding  
6       whether the water is or isn't potable, is that it  
7       may or may not be depending upon where it's taken.  
8       Mr. Rowley can further explain that. However,  
9       even if it is potable, our legal analysis is that  
10      this would not prevent its use unless recycled  
11      water is available suitable for use, and at a cost  
12      comparable to or less than potable water.

13             Our conclusion with regard to the facts  
14      on those issues is that no recyclable -- recycled  
15      water is available, suitable, and at comparable or  
16      less cost. And we will cover the options in our  
17      testimony.

18             We've also looked at other alternatives  
19      that would not directly be implicated by Section  
20      13550, such as the Tulare formation water, and we  
21      will also present evidence on that.

22             So that summarizes our brief. I won't  
23      go into any further details. It's -- it's in your  
24      hands. So, not to take too much time with that.

25             Unless there's any questions in that

1        regard of me, I would turn to our first witness.

2                HEARING OFFICER WILLIAMS:    Thank you.

3                I'm going to ask you also to re-swear  
4        the witness.    Please swear Mr. Rowley in.

5                PRESIDING MEMBER MOORE:    You might just  
6        swear both of them in at the same time.

7                (Thereupon Joseph Rowley and  
8                Peter MacLaggan were, by the  
9                reporter, sworn to tell the  
10              truth, the whole truth, and  
11              nothing but the truth.)

12                        TESTIMONY OF

13                                JOSEPH ROWLEY

14        called as a witness on behalf of the Applicant,  
15        having been first duly sworn, was examined and  
16        testified as follows:

17                                DIRECT EXAMINATION

18                                BY MR. MILLER:

19                Q        Mr. Rowley, could you just briefly state  
20        the purpose of your part of our testimony this  
21        morning?

22                A        The purpose of my testimony is to  
23        describe the applicability of 13550 sections to  
24        the project.

25                Q        Did you prepare pre-filed testimony

1       which was submitted in the proceeding?

2           A     Yes, I did.

3           Q     And do you have any changes in that  
4       testimony?

5           A     Just two extraneous pages that were  
6       attached to the testimony inadvertently should be  
7       removed. And that would be the third page in  
8       Attachment B, where the -- that third page at the  
9       top says Table A, Alternate Water Supply Sources,  
10      footnotes. And that's an extraneous page that  
11      should simply be removed.

12                   And then the last page of Attachment B  
13      is an early draft of some of the work that we did  
14      that is incomplete and contains some inaccurate  
15      information. And that page should also be  
16      removed. It was simply inadvertently attached to  
17      the testimony.

18                   HEARING OFFICER WILLIAMS:   Okay.   Mr.  
19      Rowley, I'm turning now to your testimony. And we  
20      had -- we had marked it Exhibit Number 46. And  
21      could you take me through --

22                   THE WITNESS:   Sure.   If you go to  
23      Attachment B. The first page of Attachment B is a  
24      table with three columns. The second page of  
25      Attachment B says Attachment B, Alternate Water



1       Supply Sources Footnotes. And then the third page  
2       says Table A, Alternate Water Supply Sources  
3       Footnotes. That -- that page is extraneous and  
4       should be removed.

5                   HEARING OFFICER WILLIAMS: Thank you.

6                   THE WITNESS: And then the very last  
7       page of Attachment B is also extraneous and should  
8       be removed. And that one is also labeled Table A.

9                   BY MR. MILLER:

10           Q       Okay. With these -- with these changes,  
11       do you adopt your pre-filed testimony as your true  
12       and sworn testimony in this proceeding?

13           A       Yes, I do.

14           Q       And is it based upon your best  
15       professional judgment?

16           A       Yes, it is.

17           Q       Okay. Could you please summarize your  
18       testimony.

19           A       Sure. My testimony is crafted in the  
20       form of responses to the four questions that were  
21       included in the PMPD.

22                   In response to Question Number 1, as to  
23       whether the West Kern Water District groundwater  
24       that's well filled is potable domestic water, I  
25       solicited a judgment in that regard from West Kern

1 Water District. That is provided in the form of  
2 Attachment A to my testimony.

3 Attachment A, in that letter,  
4 essentially what West Kern says is that the water  
5 directly out of their well filled is not potable  
6 water, because it has not yet been treated for  
7 potable use; that that treatment occurs at West  
8 Kern's Station A, and that following treatment,  
9 then the water does become potable.

10 Now, since our water supply pipeline  
11 originates at Station A, that means that either  
12 non-potable or potable water is available to the  
13 project, depending on whether we -- we take the  
14 pre-treatment water or the post-treatment water.  
15 And the project would prefer to take the post-  
16 treatment water, because we can avoid construction  
17 of a new tank within the confines of West Kern  
18 Station A if -- if we use the post-treatment  
19 water.

20 PRESIDING MEMBER MOORE: And will the  
21 quality be consequently higher?

22 THE WITNESS: The quality, from our  
23 perspective, is essentially the same. It's --  
24 because our -- our use is an industrial use, we  
25 don't need the water to be potable. So we could

1       conceivably -- we could use the pre-treatment  
2       water.  It's just that if -- if we use the pre-  
3       treatment water, then West Kern would construct a  
4       non-potable tank so that we could draw from that  
5       tank.  We would like to avoid that.

6                       So that's the response to Question  
7       Number 1.

8                       HEARING OFFICER WILLIAMS:  Mr. Rowley,  
9       let me just ask.  The -- the AFC states that the  
10      -- water supplied by West Kern meets regulatory  
11      standards set for -- for safe drinking water.  Are  
12      you now moving away from that statement?

13                      THE WITNESS:  No, I'm just clarifying  
14      that since our preference would be to take the  
15      post-treatment water, although we don't need  
16      potable water, the -- the water post-treatment  
17      does meet potable water standards.  So I think  
18      that is an accurate statement in the AFC.

19                      What I'm simply saying is that non-  
20      potable water that is pre-treatment water is also  
21      available, and it's essentially the same water  
22      physically.  It's just pre-treatment.  It's  
23      available at the same site from which we -- we are  
24      -- where our pipeline originates.  So we could  
25      also use that non-potable water, but to do so

1 would require the construction of a non-potable  
2 water tank by West Kern within their Statio A  
3 confines.

4 HEARING OFFICER WILLIAMS: Thank you.  
5 Also, could you explain to me what -- what happens  
6 post-extraction of the water from the ground to  
7 make it potable?

8 THE WITNESS: My understanding from West  
9 Kern -- actually, I think this is in their letter  
10 -- is that it's a combination of settling and  
11 chlorination.

12 HEARING OFFICER WILLIAMS: And what  
13 effect does that have on the water?

14 THE WITNESS: The chlorination -- well,  
15 settling is to remove suspended solids from the  
16 water, and the chlorination is to basically remove  
17 any potential for bacteria, or other, you know,  
18 biological type contaminants that would not be  
19 suitable for potable use.

20 PRESIDING MEMBER MOORE: So, Mr. Rowley,  
21 just to pursue that a little bit further. I'm  
22 looking at the District's letter back, and I'm  
23 trying to tie this back to the questions I was  
24 asking, and really the reason to go through this  
25 exercise at all.

1                   If we were to draw water from a well in  
2                   the Northern Valley, where there was no  
3                   agricultural input, there wasn't -- perhaps it was  
4                   even artesian, where it could be used for domestic  
5                   purposes almost straight out of the well, no  
6                   chlorination, no settling. That would clearly be  
7                   potable water.

8                   THE WITNESS: Actually, what West Kern  
9                   is saying is that it is not potable water, that it  
10                  would require chlorination.

11                  PRESIDING MEMBER MOORE: For public use.

12                  THE WITNESS: Yes.

13                  PRESIDING MEMBER MOORE: So that's --  
14                  that's really, in all of this, that's really a  
15                  tie-in to what makes the word "potable" used in  
16                  this circumstance, is the chlorination, the  
17                  contact chlorination.

18                  THE WITNESS: Right. And then I guess  
19                  if you look at the pre-treatment water, it would  
20                  be similar in quality to, say, the California  
21                  Aqueduct water, in terms of potability. In other  
22                  words, it's -- it's fresh water, but it has not  
23                  yet been treated to provide for potability. So,  
24                  for example, other projects that are using water  
25                  out of the California Aqueduct are essentially

1 using non-potable water.

2 PRESIDING MEMBER MOORE: So technically,  
3 you -- you're saying that there -- that water that  
4 would be extracted for any purpose today, from the  
5 Aqueduct, would not be considered technically,  
6 under the definitions that we're working with,  
7 potable.

8 THE WITNESS: That's correct. And  
9 that's based on information provided by West Kern,  
10 not in this letter, but orally.

11 PRESIDING MEMBER MOORE: Thank you.

12 THE WITNESS: Going on Questions 2 and  
13 3. The definition of recycled water provided in  
14 the Water Code says that the water -- that  
15 recycled water is that -- well, I'll just read it.  
16 Recycled water means water which, as a result of  
17 treatment of waste, is suitable for direct  
18 beneficial use, and so on. So the key words  
19 there, from my perspective, are "as a result of  
20 treatment of waste."

21 The Water Code also says that the water  
22 needs to be -- in order for such water to be used  
23 in place of potable water, for that to be a  
24 requirement, that recycled water would have to be  
25 available. It would have to be of adequate

1       quality for the intended use, and its overall cost  
2       would have to be comparable to or less than the  
3       cost of using potable water.

4               So first looking at that definition, in  
5       order to determine the availability of recycled  
6       water to the project, looking for water that would  
7       meet that definition, that is water that is as a  
8       result of treatment of waste, the water that's  
9       available in the area and that is West Kern water,  
10      Buena Vista Water Storage District water, Kern  
11      Water Bank Authority water, Tulare Formation  
12      Groundwater, none of those waters are either a  
13      waste or the result of treatment of waste. So  
14      right off the bat, none of them meet the  
15      definition of recycled water.

16              PRESIDING MEMBER MOORE: In that  
17      category, Mr. Rowley, did you investigate the AERA  
18      Energy Victory Water Treatment Plant?

19              THE WITNESS: I did have one oral  
20      discussion with -- with AERA. They plan on  
21      treating produced water -- and I guess plan is too  
22      strong of a word there -- investigating the  
23      possibility of treating produced water. And so  
24      their --

25              PRESIDING MEMBER MOORE: Produced water

1       being water derived from a well.

2                   THE WITNESS: No. Actually, that would  
3       be produced water that would be similar to the Elk  
4       Hills Oil and Gas Field produced water. That is  
5       water that in the production of oil, the oil comes  
6       up out of the ground with water intimately mixed  
7       with it. And after separation of the water and  
8       the oil, you're left with what's called produced  
9       water. And that produced water, both in the case  
10      of Elk Hills Oil and Gas Field and in terms of  
11      AERA's water, is very high TDS water, and also  
12      contains crude oil contaminants.

13                  So, actually, I was going to move on to  
14      that produced water. Produced water is not the  
15      result of treatment of waste, because it hasn't  
16      been treated. But also, it's not -- even though  
17      it's of very low quality, it is not, strictly  
18      speaking, a waste, because it actually is used in  
19      the oilfield operations. They'll take that  
20      produced water and -- and put it basically back  
21      into the oil formation in order to aid the  
22      production of oil. So none of the waters  
23      available in the area meet the basic definition of  
24      recycled water.

25                  So if you move on to the second



1 category, which is suitability, of course, the  
2 West Kern water, the Buena Vista water, and the  
3 Kern Water Bank Authority water are all suitable,  
4 but they're all similar category, and we've  
5 discussed those.

6 The Tulare formation water, even though  
7 it clearly is not a -- a waste or a treatment of  
8 -- result of treatment of waste, we ignore that  
9 for the moment. In terms of its suitability, it's  
10 very high TDS water, has a total dissolved solids  
11 on the order of 5,000 milligrams per liter. Also,  
12 the produced water --

13 PRESIDING MEMBER MOORE: Against what  
14 standard? So five -- let's get a datum that we  
15 can see 5,000 against.

16 THE WITNESS: Okay. For example,  
17 typical fresh water would be on the order of  
18 several hundred milligrams per liter. Sea water  
19 is 25,000 milligrams, 25,000 to 30,000 milligrams  
20 per liter. So 5,000 is essentially brackish  
21 water. It's not fresh water. It's not sea water.  
22 It's sort of brackish water. Since you evaporate  
23 the bulk of the water in a cooling tower, if you  
24 start with brackish water the blow-down from the  
25 cooling tower is going to be extremely

1 concentrated in salts, and that -- that presents  
2 problems in just terms of the practicality of  
3 operating a cooling tower at very high  
4 concentrations.

5 For example, if we're at four cycles of  
6 concentration, that means the circulating water  
7 going through the cooling tower would be 20,000  
8 milligrams per liter, which is, you know, nearly  
9 sea water concentration. Plus, there's -- the  
10 constituents are not table salt here. We're --  
11 we're talking about hardness constituents that  
12 would present a problem.

13 Produced water goes much further, in  
14 terms of its total dissolved solids. It's around  
15 30,000 milligrams per liter. So it starts off  
16 with a salinity that's similar to -- to sea water,  
17 but then also contains crude oil contaminants,  
18 both the oil itself and the -- the trace elements  
19 that are present in a crude oil.

20 And so in terms of suitability, the  
21 Tulare water and produced water, neither one of  
22 those would be suitable as cooling tower makeup.

23 However, if you look at it from a cost  
24 perspective, I mean if you're willing to spend  
25 enough money, you can take virtually any water.

1 If you ignore any practical or cost parameters at  
2 all, you can take almost any water and render it  
3 suitable if you spend enough money, and -- and  
4 build enough capital equipment. So if you look at  
5 it from that standpoint, we -- we tried to come up  
6 with something that would -- that would render  
7 Tulare water or produced water suitable. And the  
8 resulting cost is provided in Attachment B.

9 Just as a comparison, the West Kern  
10 water, when we look at the overall cost, that  
11 results in a overall cost of about \$3.3 million  
12 per year. In comparison, the Tulare water would  
13 be about \$5.1 million per year, and the produced  
14 water would be about \$8.9 million per year.

15 In terms of net present value, the  
16 Tulare water is about 14 and an half million  
17 dollars more. That is over and above the West  
18 Kern water, that is the overall cost of use. And  
19 a similar number for produced water would be about  
20 \$45 million.

21 So in comparing the -- the available  
22 waters in the area to the criteria in the Water  
23 Code, in terms of availability, quality, and cost,  
24 whereas the -- according to the Water Code, the  
25 recycled water would have to meet all three of

1       those criteria in order to qualify as a required  
2       substitute for potable water, Tulare water and  
3       produced water meet none of the criteria, let  
4       alone all three.

5               So we feel we're on very firm ground in  
6       saying that this recycled water is not required in  
7       this particular case, and therefore the Water Code  
8       does not preclude the use of potable water.

9               Just as a -- some additional information  
10      on the use of Tulare water or produced water, in  
11      terms of environmental effects. To use either one  
12      of those waters would result in a waste water  
13      discharge volume that's about four times greater  
14      than the proposed water source.

15              PRESIDING MEMBER MOORE: And the reason  
16      for that is?

17              THE WITNESS: Because even after  
18      treatment with reverse osmosis and so forth, the  
19      concentration of salts being made up to the  
20      cooling tower is still much higher than in the  
21      case of West Kern water. West Kern water has  
22      total dissolved solids that's around 200  
23      milligrams per liter, and so it can be cycled up  
24      considerably and still have, in our case, 1200  
25      milligram per liter discharge. The 1200

1 milligrams per liter discharge is at a lower  
2 salinity than the receiving water in the formation  
3 where we're injecting that in the ground. So  
4 actually, from a dissolved solids standpoint, the  
5 discharge would actually improve the groundwater  
6 somewhat.

7               Whereas you can compare the Tulare water  
8 or the produced water. The Tulare water would  
9 have a discharge we're estimating around 10,000  
10 milligrams per liter, which is roughly double the  
11 salinity of the receiving water. The produced  
12 water would have TDS of about 64,000 milligrams  
13 per liter, which is something like 12 times the  
14 salinity of the receiving water. So both the  
15 Tulare water discharge and the produced water  
16 discharge would have a detrimental effect on the  
17 receiving water.

18               In terms of solid waste, both the water  
19 treatment involved in trying to create a suitable  
20 product out of the Tulare water or the -- or the  
21 produced water would result in substantial  
22 quantities of solid waste. The numbers are  
23 provided in Attachment B. The Tulare water we  
24 estimate would produce about 86,000 cubic yards of  
25 hazardous solid waste over the project's life, and

1 the produced water would produce, or would  
2 generate around 277,000 cubic yards of hazardous  
3 solid waste. And then there are substantial  
4 gallons per minute of hazardous liquid waste  
5 produced, as well.

6 So all things considered, we, again,  
7 believe we're on very firm ground in saying that  
8 the water that we have proposed is consistent with  
9 the Water Code, and that recycled water is not  
10 available and the waters that are available are  
11 not suitable, nor do they meet the cost standard  
12 that is described in the Water Code.

13 In In Question Number 4, in the PMPd, it  
14 asks about other potential sources of water.  
15 We've basically talked about all the -- all the  
16 potential sources. I'll just mention a couple of  
17 others that are already in the evidentiary record,  
18 and that is agricultural drain water and municipal  
19 wastewater effluent, neither of which are present  
20 in the significant lines of the project area.

21 And that concludes my testimony.

22 HEARING OFFICER WILLIAMS: Thank you,  
23 Mr. Rowley.

24 Is there any cross?

25 MS. LEWIS: None.

1 MS. POOLE: No.

2 HEARING OFFICER WILLIAMS: Okay.

3 Applicant, you may proceed with your next witness.

4 MR. MILLER: All right. We'll turn now  
5 to Mr. MacLaggan.

6 TESTIMONY OF

7 PETER M. MacLAGGAN

8 called as a witness on behalf of the Applicant,  
9 having first been duly sworn, was examined and  
10 testified as follows:

11 DIRECT EXAMINATION

12 BY MR. MILLER:

13 Q And I'll ask, to begin with, if you  
14 could please state your name and address for the  
15 record.

16 A My -- excuse me. My name is Peter  
17 MacLaggan, my address is 4021 Liggett Drive, San  
18 Diego, California 92106.

19 Q And could you summarize the purpose of  
20 your testimony, please?

21 A The purpose of my testimony is to  
22 describe the applicability of Water Code Section  
23 13550 and following, as applied to the Applicant's  
24 proposed project.

25 Q Thank you. Could you please describe

1 your background, educational and work experience,  
2 that is pertinent to that purpose?

3 A Yes, I'd be happy to do so. I am a --

4 HEARING OFFICER WILLIAMS: Sir, you  
5 could -- you could just, if you will, summarize  
6 it. We've marked your testimony as Exhibit 47,  
7 and I think we -- we have your qualifications  
8 also, marked as Exhibit 48.

9 (Thereupon Exhibits 47 and 48 were  
10 marked for identification.)

11 HEARING OFFICER WILLIAMS: So if -- if  
12 Mr. Miller will be so kind as to formally  
13 introduce those into the record, we'll have it.  
14 So you don't need to go into it in detail.

15 THE WITNESS: Okay. Just -- just for  
16 the purposes of this hearing, the -- I think the  
17 salient points in my experience and education is  
18 that I have spent the last 15 years working as an  
19 advocate for water recycling throughout the state  
20 of California, specifically engaged since 1986 in  
21 the enforcement of these statutes in question this  
22 morning.

23 I've been involved in development of a  
24 statewide legislative and regulatory agenda with  
25 respect to recycling, as I service the legislative



1       and regulatory director of an association, the  
2       Water Re-use Association of California. It's a  
3       250 member organization of public agencies and  
4       professionals in the water and wastewater  
5       industry, all with the common objective of  
6       increasing recycling throughout California. We  
7       were the sponsors of the most recent amendments,  
8       the post 1990 amendments of each of the statutes  
9       in question.

10               So, in summary, I have extensive  
11       experience in the application, use, and  
12       enforcement of these provisions of the Water Code.

13               BY MR. MILLER:

14               Q     Mr. MacLaggan, are you a registered  
15       engineer?

16               A     Yes, I am a registered engineer.

17               Q     And are you also an attorney?

18               A     Yes, I'm a member of the California Bar.  
19       My engineering registration is civil, by the way.

20               Q     Thank you. And did you prepare pre-  
21       filed testimony that we've submitted?

22               A     Yes, I have.

23               Q     And do you adopt your pre-filed  
24       testimony as your true and sworn testimony in this  
25       proceeding, based upon your best professional

1 opinion?

2 A Yes, I do.

3 Q Could you please summarize your  
4 testimony?

5 A I'd be happy to do so. I refer to  
6 Sections 13550 and following as the mandatory re-  
7 use provisions of the Water Code. The purpose of  
8 these provisions is to prevent the potable -- the  
9 use of potable water if recycled water is  
10 available for appropriate application, and that  
11 water meets certain conditions.

12 There are seven conditions that are  
13 spelled out in Section 13550 that must be met  
14 before such a requirement can be placed on a  
15 project. There are three of those that are  
16 applicable to the Applicant's project; most  
17 notably, the availability of the recycled water  
18 supply, the cost, and the quality of the recycled  
19 water. My testimony focuses on each of these  
20 three criteria.

21 To the extent that the criteria have not  
22 been met, the Applicant cannot be required, under  
23 those pertinent Water Code provisions, to use  
24 recycled water in lieu of the potable water for  
25 the project.

1                   With respect to the availability of the  
2                   recycled water, the Water Code includes a  
3                   definition that states specifically that the water  
4                   -- recycled water is water which has been, as the  
5                   result of treatment, rendered suitable for the --  
6                   the direct beneficial use. In this case, we're  
7                   talking about a use of cooling tower makeup water.  
8                   The two proposed sources of recycled water, the  
9                   produced water and the Tulare groundwater,  
10                  formation water, fall short of this definition.

11                  In the case of the produced water, it  
12                  has yet to be treated to a level suitable for the  
13                  intended use, so it does not meet the Water Code  
14                  definition of recycled water.

15                  With the Tulare formation water, we have  
16                  a supply here that's derived from natural  
17                  groundwater, so not only has it not been treated  
18                  prior to delivery to the Applicant to serve their  
19                  intended uses, it also is not the result of a  
20                  waste. So it is not the result of treatment of  
21                  waste, nor is it rendered suitable for that direct  
22                  beneficial use.

23                  I -- I have found that neither one of  
24                  these supplies meets those criteria.

25                  With respect to the cost considerations,

1       Section 13550, subsection (a)(2), provides that  
2       the cost incurred by the Applicant to use the  
3       recycled water in lieu of potable water must be  
4       comparable to or less than the cost of supplying  
5       potable domestic water. The State Water Resources  
6       Control Board has rendered two administrative  
7       decisions that have interpreted this phrase, and  
8       in their interpretation they have found it to mean  
9       all costs incurred by the end user to receive and  
10      use the recycled water in lieu of the potable  
11      water, including internal cost to the end user's  
12      operations.

13               As applied to the Applicant's proposed  
14      project, these costs include the capital cost of  
15      maintenance and operation costs associated with  
16      production and delivery of the recycled water, any  
17      additional treatment that may be required to  
18      render it suitable for the intended use, and the  
19      treatment and disposal of any residual waste water  
20      from the project.

21               Mr. Rowley's testimony estimates that  
22      the use of the produced water in lieu of the West  
23      Kern water supply would result in a net annual  
24      increase in the supply to the Applicant for the  
25      produced water at approximately \$5.6 million per

1       year, which represents a 170 percent increase in  
2       the cost of water supply over that of the West  
3       Kern Water District supply.

4               With respect to the Tulare formation,  
5       he's estimated that that supply would cost an  
6       additional \$1.8 million a year to the Applicant,  
7       or 55 percent increase in water supply costs.

8               The recycled water in this instance, in  
9       both instances, because of the higher cost, is not  
10      comparable or less to -- less than the cost of  
11      potable water supply, and I would find that in the  
12      present case neither could be required under  
13      Section 13550 and following.

14              With respect to the water quality  
15      considerations, 13550, subsection (a)(1), provides  
16      that the quality of the recycled water must be  
17      suitable for the intended use. The cooling tower  
18      use here for the -- the specific project under --  
19      under the subsection, the Commission needs to  
20      take into consideration the types and specific  
21      constituents in the water, the effect the use --  
22      the effect of that recycled water use on the  
23      generation of hazardous waste, and the quality of  
24      the wastewater discharges. Those are the specific  
25      requirements spelled out for the Section 13550,

1 subsection (a)(1).

2 Again, Mr. Rowley's testimony provides  
3 that with respect to a specific constituent of  
4 concern for the application, the total dissolved  
5 solids content, you have a situation where the  
6 West Kern water is at 200 milligrams per liter,  
7 generally considered a high quality water supply.  
8 The produced water is at 22,000 to 35,000  
9 milligrams per liter, considered a very poor  
10 quality of water supply, similar to that of  
11 seawater. And the Tulare formation is at 5,000  
12 milligrams per liter, referred to as brackish  
13 water.

14 The TDS of water supply for makeup  
15 purposes for a cooling tower is important for a  
16 number of considerations. You have impacts to the  
17 useful life of the process equipment through  
18 increased corrosion and -- and constituents of the  
19 total dissolved solids that are coming out of  
20 solution and -- and are impacting the efficiency  
21 of the cooling tower.

22 You have a controlling factor on the  
23 number of cycles you can recycle that water  
24 through the tower, depending on the concentration  
25 of the feedwater. The higher the salinity, the

1       less cycles through the tower. And as pointed out  
2       in Mr. Rowley's testimony, they would receive four  
3       cycles with the two alternative water supplies,  
4       whereby they could have six cycles through the  
5       tower with the West Kern supply.

6               The significance of the reduced cycles  
7       means that there's more makeup water required,  
8       there's more wastewater produced in the way of  
9       cooling tower blowdown, both of which have impacts  
10      on the project and the environment.

11             The produced water would require  
12      approximately 1.7 million gallons per day of  
13      additional makeup water, a 300 percent increase in  
14      wastewater discharges from the project, and with  
15      respect to the Tulare water, you would have 1.4  
16      million gallons per day of additional makeup water  
17      required, and a 270 percent increase in wastewater  
18      discharges from the project.

19             The total dissolved solids content of  
20      these discharges would be higher. They would be  
21      increased production of hazardous waste in the  
22      form of solid waste that would need to be exported  
23      from the project, all associated with the  
24      alternative water supplies.

25             The conclusion I have drawn from this

1 information provided by Mr. Rowley's testimony is  
2 that the produced water and the Tulare formation  
3 water may not be of adequate quality for the  
4 intended use. Both sources are greater in the  
5 dissolved solids content. There's going to be a  
6 significant increase in consumption of water, a  
7 significant increase in the -- in the quantity of  
8 wastewater produced, and -- and the quality of  
9 that wastewater is going to be poorer in nature.  
10 And lastly, the useful life of the process  
11 equipment will likely be shortened.

12 So, in conclusion, I have rendered the  
13 following findings in my testimony.

14 Requiring the use of the recycled water  
15 in the Elk Hills Project would be contrary to the  
16 terms and intent of Section 13550 and following.  
17 The recycled water is not available to the  
18 Applicant per the terms of the Water Code. The  
19 cost of the recycled water service would be  
20 considerably higher than that of the -- the West  
21 Kern supply. And with respect to this cost  
22 consideration, it's my position that the estimates  
23 provided in Mr. Rowley's testimony have been based  
24 on extremely conservative assumptions and they  
25 could be considerably higher than that provided.



1       Lastly, the recycled water would not be suitable  
2       for the intended use.

3               This would conclude my testimony.

4               HEARING OFFICER WILLIAMS:   Is there any  
5       cross?

6               MS. LEWIS:   None.

7               MS. POOLE:   No.

8               HEARING OFFICER WILLIAMS:   Okay.

9               MR. MILLER:   I would like to move the  
10       exhibits that contain that testimony at this time,  
11       if that be appropriate.

12               HEARING OFFICER WILLIAMS:   Any  
13       objection?

14               MS. LEWIS:   No -- no.

15               MR. MILLER:   I can read the numbers.  
16       That would be Exhibits 46, 47, 48.

17               HEARING OFFICER WILLIAMS:   Okay.   Thank  
18       you.   So moved.

19               (Thereupon Exhibits 46, 47 and 48 were  
20       received into evidence.)

21               MR. MILLER:   We would also like to move  
22       Joint Exhibits 1 and 2.

23               HEARING OFFICER WILLIAMS:   So moved,  
24       seeing no objection.

25       ///

1                   (Thereupon Joint Exhibits 1 and 2  
2                   were received into evidence.)

3                   HEARING OFFICER WILLIAMS:   Does that  
4                   conclude your presentation?

5                   MR. MILLER:   Yes, it does.

6                   HEARING OFFICER WILLIAMS:   Thank you.  
7                   We will now proceed with Staff.

8                   MS. LEWIS:   Thank you.   I'll start off  
9                   with a just brief summary of our brief, our  
10                  comments in response to the Committee's questions,  
11                  and then we'll move to Mr. O'Hagan's testimony on  
12                  costs.

13                  Staff began -- we began our analysis  
14                  under the assumption that the West Kern Water  
15                  District water is potable domestic water.   I think  
16                  that's an assumption that -- that we started with,  
17                  and probably is reasonable at this point.

18                  Using this assumption, Staff reviewed  
19                  the Water Code sections that were outlined in the  
20                  Committee's briefing order, and although we agree  
21                  with the Committee that the Water Code disfavors  
22                  the use of potable domestic water or -- for  
23                  cooling, we do not believe that it precludes it.  
24                  In order to require the use of recycled water, as  
25                  was mentioned by the Applicant, the statute

1 requires a several prong test be met.

2 One, the recycled water must be  
3 available; it must be -- second, it must be of  
4 adequate quality; and, third, it must be furnished  
5 at a reasonable cost to the user.

6 Staff looked at the literal meaning of  
7 the statute as well, and the definition of  
8 recycled water, and we determined that it did not  
9 mean water that could be recycled, but water that  
10 had been treated.

11 Staff had previously testified that  
12 wastewater treatment effluent was not available  
13 for this project, and that there are no wastewater  
14 treatment plants in the region that could supply  
15 this project. But even if we expand the  
16 definition of recycled water to include water that  
17 could be treated, or recyclable water that would  
18 include produced water, there was testimony  
19 already on the record, and was also given today,  
20 that produced water would not be available for  
21 this project either.

22 Second, we looked at the quality of  
23 water to determine if the produced water would be  
24 of adequate quality. Previous and current  
25 testimony by Mr. Rowley clearly state that it is

1 not. The produced water is more saline than the  
2 seawater, and also contains crude oil.

3 Third, we looked -- the Staff looked at  
4 the -- whether the recycled water could be  
5 furnished at a reasonable cost to the user. And  
6 basically, this is a straightforward test. The  
7 cost must be comparable or less than the proposed  
8 water supply.

9 Mr. O'Hagan has provided in Attachment  
10 A an estimated cost of the various water supply  
11 sources, and will be providing his summary in just  
12 a few moments.

13 Fourth, the Committee asked for us to  
14 look at alternatives. The Staff and Applicant did  
15 deal extensively with alternative sources in our  
16 FSA, and previous testimony. The Water Code is  
17 basically silent on reviewing other sources of  
18 water as alternatives.

19 In conclusion, Staff and the Committee  
20 concluded that the use of groundwater in this case  
21 would not cause any significant environmental  
22 impacts. The Water Code sections do not preclude  
23 the use of the source of groundwater, nor do they  
24 require reviewing any other alternatives.

25 At this time, I'd like to have Mr.

1 O'Hagan be sworn in.

2 (Thereupon Joseph O'Hagan was, by  
3 the reporter, sworn to tell the  
4 truth, the whole truth, and nothing  
5 but the truth.)

6 HEARING OFFICER WILLIAMS: Before you  
7 begin, counsel, I just have one question. I want  
8 to take your assumption that this is potable water  
9 and ask Mr. O'Hagan, are you aware of any other  
10 power plants in California that use potable water?

11 MR. O'HAGAN: Yes. Both the SMUD  
12 cogeneration projects here use potable water.  
13 They use American River water. The -- I'm  
14 referring to the Campbell and the Procter and  
15 Gamble facility. There are a number -- a number  
16 of others, none of which I can think of at the  
17 moment.

18 HEARING OFFICER WILLIAMS: And are you  
19 aware when those projects were certified? Were  
20 they post the changes to the Water Code? Do you  
21 have any --

22 MR. O'HAGAN: In terms of water  
23 recycling?

24 HEARING OFFICER WILLIAMS: Yes.

25 MR. O'HAGAN: They were -- actually the

1 water recycling legislation was on the books when  
2 those were certified.

3 HEARING OFFICER WILLIAMS: Thank you.

4 TESTIMONY OF

5 JOSEPH O'HAGAN

6 called as a witness on behalf of the Commission  
7 Staff, having first been duly sworn, was examined  
8 and testified as follows:

9 DIRECT EXAMINATION

10 BY MS. LEWIS:

11 Q Just for the record, could you please  
12 state your name?

13 A My name is Joseph O'Hagan.

14 Q And can you state the title of your  
15 testimony?

16 A It's Attachment A, Soil and Water  
17 Resources Supplemental Testimony of Joseph  
18 O'Hagan.

19 Q And I believe that has been marked as  
20 Exhibit 19-E.

21 Do you have any changes or corrections  
22 to your testimony today?

23 A No.

24 Q And does it --

25 A I'm sorry, no.

1           Q     And does this testimony represent your  
2     best professional judgment?

3           A     Yes, it does.

4           Q     Could you please provide a summary of  
5     your testimony.

6           A     The testimony meant to address the  
7     questions asked on, I believe, page 272 of the  
8     PMPD, about water supply, the first question being  
9     whether water from the West Kern Water District is  
10    potable.

11                     Staff's assumption, based on information  
12    supplied in the original AFC, is that it is  
13    potable.  There's also Water Code Section 13551, I  
14    believe, it refers to waters of quality suitable  
15    for potable use.  And so even if the water isn't  
16    actually suitable for domestic consumption because  
17    it hasn't been treated for Giardia and things like  
18    that, it's certainly very good quality water that  
19    would -- would take minimal treatment to become  
20    potable.

21                     What I should point out is that one of  
22    the reasons West Kern Water District uses  
23    groundwater to supply their domestic customers is  
24    that groundwater requires less treatment than  
25    surface water.  State and federal regulations for

1 surface water treatment are fairly rigorous, where  
2 groundwater being in some instances a lot more  
3 protected from contamination like Giardia, or  
4 crypto sporidium, requires a lot more treatment,  
5 where groundwater you can, as Mr. Rowley  
6 indicated, you can do -- settle out solids and  
7 chlorinate to disinfect, and then it's ready.  
8 Where, say, your drinking water here in Sacramento  
9 requires a lot more treatment than that coming out  
10 of either the American or Sacramento River. So  
11 Staff considered the water potable.

12 My testimony didn't address whether  
13 produced water from the Elk Hills oilfield is a  
14 recycled water source, but I did try to address  
15 the -- the requirements under Water Code Section  
16 13550, whether the water is of suitable quality  
17 and is -- is available for this purpose.

18 The use of produced water with a water  
19 quality of 20 to 40,000 milligrams TDS  
20 theoretically could be used. I think it would  
21 cause significant problems for the power plant  
22 operator. Based on my conversations with  
23 representatives in the water treatment and cooling  
24 tower industry, nobody is aware of anybody using  
25 water anywhere in the world near that -- that poor



1       quality of water.

2               There has been some work done in the  
3       past about using seawater in cooling towers or for  
4       small pilot projects that are no longer being  
5       pursued.

6               There is -- assuming that the water  
7       could be used, it would pose significant economic  
8       problems, as well as operational problems for the  
9       power plant operator. Economics would require  
10      special material for your cooling tower fills, it  
11      would require a higher quality condenser that  
12      would be more resistant to salt. And -- and more  
13      importantly maybe, from an economic perspective,  
14      is that since you couldn't cycle the produced  
15      water as often as you could the water from West  
16      Kern, you would be dealing with a larger volume,  
17      which would present a disposal problem.

18              Assuming that you could use injection  
19      wells for disposal, which I'm not sure is a  
20      realistic assumption, you would require several  
21      additional injection wells which would have a  
22      significant cost to it, to the wells themselves,  
23      as well as pipelines, lift stations, to get the  
24      wastewater to them, as well as your monitoring  
25      requirements during operation.

1                   And certainly, usually your injections  
2           wells don't last for the life of a power plant.  
3           You'd need to reinstall wells periodically. And I  
4           also would think that the cooling tower would have  
5           a fairly shortened life span, and you wouldn't be  
6           getting -- you would have to replace the cooling  
7           tower probably several -- several times over the  
8           life of the project.

9                   So I think in comparing the economic  
10          aspects of the use of the water from the West Kern  
11          Water District and the use of produced water, you  
12          know, if you consider the use of the produced  
13          water as a possibility, the economics certainly  
14          favor the use of the West Kern Water District.

15                  I didn't address the environmental  
16          aspects of it, but I'd have to point out that it's  
17          quite likely, in the produced water from the Elk  
18          Hills, that there are constituents that would  
19          raise serious concerns about whether you could  
20          discharge that wastewater, the cooling tower  
21          blowdown, to -- through injection wells.

22                  We also took a look at alternative  
23          sources of water. These are -- Staff could not  
24          identify any alternative sources of water that  
25          could be construed as recycled water. But we did

1 discuss briefly the use of Tulare groundwater,  
2 which had been discussed by Mr. Rowley during the  
3 earlier evidentiary hearings and today. And even  
4 using that better quality groundwater would still  
5 present a significant economic costs above the use  
6 of the West Kern Water District water.

7 And also, I -- I identified potential  
8 water conservation measures by additional  
9 recycling if you're using the West Kern Water  
10 District water.

11 Q Does that conclude your testimony?

12 A Yes, it does.

13 MS. LEWIS: At this time I'd like to  
14 move Mr. O'Hagan's Supplemental Testimony as  
15 Exhibit 19-E, into the record.

16 HEARING OFFICER WILLIAMS: Any  
17 objection?

18 MR. MILLER: No objection.

19 PRESIDING MEMBER MOORE: No objection.

20 MS. LEWIS: And Mr. O'Hagan is available  
21 for cross examination.

22 PRESIDING MEMBER MOORE: Good. Mr.  
23 O'Hagan, I have a question for you, then.

24 You have been listening to the testimony  
25 of the Applicant, and I want to go back to your

1 point that you were making about Staff's  
2 conclusion regarding the potability of this water.

3 Mr. Rowley and his expert have testified  
4 that, in fact, given the circumstances, especially  
5 the contact chlorination that's involved, that  
6 technically renders the water un -- or not  
7 potable. Am I understanding you correctly, that  
8 you don't consider the contact chlorination to be  
9 the factor that makes the difference?

10 THE WITNESS: Actually, my understanding  
11 is that the chlorination and the clarification and  
12 the chlorination of the water at the West Kern  
13 Water treatment facility does, in fact, make the  
14 water potable. Now, there may be residual  
15 chlorination levels from the contact chlorination  
16 that exceed drinking water standards, but that I  
17 -- I'm not aware of.

18 PRESIDING MEMBER MOORE: Okay. So just  
19 for my own understanding, then. You are agreeing  
20 with the Applicant's testimony that the water as  
21 it comes out of the ground is not potable?

22 THE WITNESS: Yes.

23 PRESIDING MEMBER MOORE: Okay. Thank  
24 you.

25 THE WITNESS: My understanding all along

1       was that the water to be supplied to the project  
2       was coming from the West Kern Water District's  
3       water treatment facility. My assumption was once  
4       that water exits that facility, it is potable.

5               PRESIDING MEMBER MOORE: But prior to  
6       that it is not.

7               THE WITNESS: That's correct.

8               PRESIDING MEMBER MOORE: Okay. Thank  
9       you.

10              HEARING OFFICER WILLIAMS: I just have  
11       one question about the -- the Victory Water Plant.  
12       You had stated in -- in your previous testimony on  
13       water that there are no wastewater treatment  
14       plants in the region that could supply the  
15       project. And we understand that in the Midway  
16       Sunset matter that's coming up, that they will be  
17       using a -- the AERA Energy Victory Water Treatment  
18       Plant. And as I understand it, it's in close  
19       proximity to the Elk Hills and Midway Sunset  
20       projects.

21              Could you just explain what you meant?

22              THE WITNESS: Certainly. My testimony  
23       was referring to wastewater treatment plants that  
24       would be treating sewage, you know, from a  
25       residential development, Maricopa, you know,

1 Mariposa, you know -- Taft, I'm sorry, communities  
2 like that. And we had contacted those wastewater  
3 treatment operators, and they are small facilities  
4 and the volume was vastly insufficient to meet the  
5 project's needs.

6 The AERA facility that Midway Sunset's  
7 dealing with is actually a water treatment  
8 facility where they are softening the produced  
9 water from the oilfield to be used in the  
10 oilfield. And one of the differences here is, is  
11 that the produced water in the Midway Sunset  
12 oilfield is a lot better quality than what you  
13 find in the Elk Hills oilfield.

14 And the produced water quality varies  
15 quite a bit, and if you went to the east side of  
16 the valley there, like the Kern River field, the  
17 produced water quality is actually very, very  
18 good, and it's actually used for irrigation. It  
19 was blended, but it is used for irrigation  
20 purposes.

21 So there -- even though it's not a huge  
22 difference as the crow flies, there is -- there is  
23 a difference in the water quality in that the AERA  
24 facility is a water treatment facility versus a  
25 wastewater treatment facility.

1 HEARING OFFICER WILLIAMS: Okay. Is  
2 there any cross examination at this point?

3 MR. MILLER: I apologize. I was not  
4 engaged here.

5 We have no questions of Mr. O'Hagan.

6 HEARING OFFICER WILLIAMS: Okay.

7 MS. POOLE: No questions.

8 HEARING OFFICER WILLIAMS: Okay. And I  
9 still don't see any members of the public here, so  
10 I think we're nearing the point where we can  
11 adjourn.

12 Commissioner Moore, do you have --

13 PRESIDING MEMBER MOORE: No. I -- I  
14 would simply ask if there are any -- as we do  
15 prepare to adjourn, are there any other remarks or  
16 items that you want me to consider prior to taking  
17 this under advisement and moving to a final  
18 document?

19 And as far as I'm concerned, all the  
20 topic areas are open.

21 MR. MILLER: If it would be all right, I  
22 would like to pose one question to Mr. O'Hagan  
23 after all.

24 PRESIDING MEMBER MOORE: Well, except  
25 questions after you've relinquished the floor. I

1 mean, those are -- go ahead.

2 MR. MILLER: This is pretty radical  
3 procedure, I know.

4 CROSS EXAMINATION

5 BY MR. MILLER:

6 Q I would like to ask -- and it's hard to  
7 see over there -- how you might compare the AERA  
8 produced water with the Tulare formation water.

9 A Actually, the -- I'm sorry. Once it's  
10 been treated, or just the --

11 Q Prior to treatment.

12 A -- Midway Sunset -- prior to treatment.  
13 If I recall correctly, the produced water coming  
14 out of the Midway Sunset field does get up to  
15 around 10,000 milligrams per liter. For the  
16 Tulare groundwater it's about half of that.

17 MR. MILLER: Thank you. I have no  
18 further remarks to offer.

19 PRESIDING MEMBER MOORE: Thank you. Any  
20 final comments, counsel?

21 MS. LEWIS: None. Thank you.

22 PRESIDING MEMBER MOORE: Ms. Poole.

23 MS. POOLE: No. Thank you.

24 PRESIDING MEMBER MOORE: Anyone else,  
25 and officially, for the record, anyone in the



1 public who would like to offer us a comment prior  
2 to closing the -- this matter?

3           Seeing none, I'm going to bring this  
4 back to the dais and tell you all thank you. It's  
5 been a pleasure to work with you on this. I  
6 realize it got contentious at some times, and long  
7 at other times, but frankly I think the process  
8 benefitted from it, and that we are better off as  
9 a Committee. And I, for all -- all the pain that  
10 some of the moments caused, I thank CURE for the  
11 technical help that Phyllis Fox offered us, and  
12 certainly offered me an education that I wasn't  
13 going to get any other place.

14           And so for that, I'm grateful.

15           MS. POOLE: Thank you, Commissioner. We  
16 appreciate that.

17           PRESIDING MEMBER MOORE: So, there are  
18 times when I have disagreed with any of you, and I  
19 know that there are times when I have made rulings  
20 that discomfited any one of you. I hope that in  
21 the end, on balance, you look back and see that  
22 they were equally distributed, and I hope very  
23 much that when you look back on this process you  
24 think that we were fair, which is what you pay me  
25 for, I think, is to make as impartial and as fair

1 a judgment as it's possible to do.

2 And I trust that the opinion that is  
3 rendered when we follow this will be thought of --  
4 thought by you in the same way.

5 Thank you. We are adjourned.

6 (Thereupon the hearing was concluded  
7 at 10:30 a.m.)

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## CERTIFICATE OF REPORTER

I, DEBI BAKER, an Electronic Reporter,  
do hereby certify that I am a disinterested person  
herein; that I recorded the foregoing California  
Energy Commission Hearing; that it was thereafter  
transcribed into typewriting.

I further certify that I am not of  
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